

## REMARKS

This is a simultaneous amendment for an RCE. The amendment is filed under 37 CFR 1.114 and responds to the final Office Action dated January 11, 2005. Continued prosecution is respectfully requested under 37 C.F.R. 1.114.

### I. Claim Changes

The pending claims 19 to 25, which provided patent claim coverage of the broadest scope, have been canceled, so that prosecution can continue with claims 26 to 44.

In addition, the remaining independent method claims 26 and 32 and independent device claim 42 have been amended to emphasize that the method and device are limited to an image processing device, which processes the image data from the image producing means (camera), so that a road or street section description is obtained from the image data by means of the image processing device. In other words, the road or street section description is obtained from the image data. This feature is at the heart of the applicants' invention. Claims 35 and 44 were similarly amended.

Multiple dependent claims 39, 40 and 41 were amended so that the dependency on the canceled claim 19 is eliminated.

## **II. Obviousness Rejection Based on Heimann and Okude**

Claims 19, 21, 23, 39 and 40 (41?) were rejected as obvious under 35 U.S.C. 103 (a) over Heimann, et al (US Patent 5,948,042), in view of Okude, et al (US Patent 6,157,342).

Claims 19 to 25 have been canceled, obviating this rejection. The remaining independent method claims 26 and 32 or device claim 42 have not been rejected on this basis.

Furthermore neither Heimann, et al, nor Okude, et al, **disclose or suggest** a system for producing road or street section data for a digital map including cycle lane and vehicle lane quality information or including number of lanes, width of a lane in which the vehicle travels etc, which is obtained by processing image data from an image producing device.

It is well established by many U. S. Court decisions that to reject a claimed invention under 35 U.S.C. 103 there must be some hint or suggestion in the prior art of the modifications of the disclosure in a prior art reference or references used to reject the claimed invention, which are necessary to arrive at the claimed invention. For example, the Court of Appeals for the Federal Circuit has said:

"Rather, to establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant...Even when obviousness is based on a single reference there must be a showing of a suggestion of motivation to modify the teachings of that reference.." *In re Kotzab*, 55 U.S.P.Q. 2<sup>nd</sup> 1313 (Fed. Cir. 2000).

There is no hint or suggestion in either of these two references, Heimann, et al, and Okude, et al, of a method and device for producing road or street section data including cycle lane and vehicle lane quality information or including number of lanes, width of a lane in which the vehicle travels etc, by processing image data from an image producing device. See MPEP 2141.

Furthermore Okude, et al, do not disclose or suggest a method or device for producing (collecting and analyzing) road or street data for a digital map within the meaning of the present invention. Okude, et al, only disclose or suggest a device for displaying such road or street data of a digital map in new ways, specifically stereoscopically or in three-dimensions (last paragraph of claim 1; figs. 16, 17, column 14, lines 45 and following) after it has been produced in some way. Okude, et al, do not disclose test vehicles or any vehicles with an image-producing device, or indeed any other device, that produces or collects data regarding the road or street location, quality or other information.

Okude, et al, do **not** teach or suggest anything regarding collecting data from which a road or street description is obtained by means of imaging devices, e.g. cameras, mounted on test vehicles traveling over a road or street system.

Since the dependencies of multiple dependent claims 39 to 41 have been changed so that they no longer depend on claim 19, but instead only on either claim 26 or 32, these dependent claims 39 to 41 can no longer be rejected as obvious from Heimann, et al, and Okude, et al, alone.

Thus it is respectfully submitted that amended claims 26 to 44 should not be rejected under 35 U.S.C. 103 (a) over Heimann, et al, in view of Okude, et al.

### III. Obviousness Rejection Based on Heimann, Okude and Wilson

Claims 20, 22, 24 to 38, 43(42) and 44 were rejected as obvious under 35 U.S.C. 103 (a) over Heimann, et al (US Patent 5,948,042), in view of Okude, et al (US Patent 6,157,342), and further in view of Wilson, et al (US Patent 6,385,539). In view of the changes in the dependency of claims 39 to 41 it will be assumed in the following argumentation that they were rejected as obvious in view of all three of the cited prior art references, Heimann, Okude and Willson.

Heimann, et al, do disclose a method for road or street data by sending test vehicles equipped with GPS positioning devices over a system of roads and streets and collecting GPS data including positions of the test vehicles and other data as they travel over the roads and streets (e.g. column 5 of Heimann, et al). The other data may at least in part be collected by a video camera attached to the vehicle. See column 4, lines 35 to 40, and column 6, lines 26 to 32. However Heimann, et al, do not disclose collecting lane quality or lane dimensions of a multi-lane road with the video camera. Also there is no disclosure in this reference that suggests that lane data *could* be collected with a video camera.

As noted above, Okude, et al, do not teach or suggest anything regarding collecting data from which a road or street description is obtained by means of imaging devices, e.g. cameras, mounted on test vehicles traveling over a road or street system. Okude, et al, only teach methods and devices for displaying road or street data after it has been collected or produced.

One critical distinguishing feature of the present invention, as claimed in method claims 26 and 32, *which is absent and not suggested from the disclosure*

of Heimann or Okuda, is that the claimed method includes steps for producing vehicle lane quality information or including the number of lanes, the width of a lane in which the vehicle travels and other data regarding the lanes of a multi-lane road, including cycle lanes for bicycles, which is obtained by processing image data from an image producing device mounted on a test vehicle traveling over the road or street. The same is true of device claim 42.

Wilson, et al, has been cited in the Office Action for disclosing a method of producing a road or street section description that includes lane information for multi-lane roads or streets. Nevertheless it is respectfully submitted that one skilled in the art would not combine Wilson, et al, with the other prior art references of record to obtain the claimed invention, because Wilson, et al, includes teaching that the claimed method should not be performed as claimed in claim 26 or 32, specifically, that road or street information regarding lane information, particularly lane boundaries, could not be produced by processing image data obtained with a camera or other imaging device.

Wilson, et al, disclose a method for collecting digital map data including lane data for a system of roads by sending test vehicles over the road system equipped with GPS, or more specifically the more accurate DGPS, in order to collect data regarding the individual lanes of a road or street. Wilson, et al, disclose methods for obtaining information regarding the distance to the edge of the road, or lane widths, using DGPS (claims 17, 12, 15; column 6, lines 36 to 45). Briefly, according to claim 17, a plurality of probe vehicles with DGPS position determining devices travel over the lanes of a multi-lane roadway collect

comparatively more accurate position data with DGPS. Then the precise position data from several vehicles, which have traveled over a respective lane, is averaged to obtain accurate results for the position of the centerline of the respective lane.

However Wilson, et al, teaches that one should not use vehicle-mounted machine vision systems (i.e. camera equipment) to obtain accurate lane information including the position of the centerline of a lane on a road or the distance to the edge of the road in column 5, lines 7 to 25, because of various accuracy problems associated with camera equipment. Particularly see column 5, lines 16 to 19.

Heimann, et al, teaches, in contrast, that a video camera can be used to collect road or street information when it is mounted on a vehicle that travels over a road or street (column 4, lines 35 to 40; column 5, line 25 to 32). Ignoring the fact that Heimann, et al, only teach that traffic sign information can be collected with the digital camera, it would be apparent to one skilled in the art from the disclosures of Wilson that the references suggest that one should not replace the DGPS method of collecting lane information, such as lane boundaries, for a multi-lane road of Wilson, et al, with a method of collecting lane information using the video camera of Heimann, et al. The references, specifically Wilson, et al, column 5, lines 16 to 19, teach that that type of information cannot be collected with a video camera.

It is well established that a prior art reference that contains teaching against a claimed invention should not be combined under 35 U.S.C. 103 (a) with

one or more other prior art references to reject the claimed invention as obvious.

See M.P.E.P. 2145 X. For example, the Federal Circuit Court of Appeals has said:

"That the inventor achieved the claimed invention by doing what those skilled in the art suggested should not be done is a fact strongly probative of nonobviousness." In Kloster Speedsteel AB v. Crucible Inc., 230 U.S.P.Q. 81 (Fed. Cir. 1986), on rehearing, 231 U.S.P.Q. 160 (Fed. Cir. 1986).

Thus it is clear that one skilled in the art would not combined Wilson, et al, with the other references, Heimann, et al, and Okude, et al, under 35 U.S.C. 103 (a) to obtain the claimed invention according to the amended claims 26 to 44.

Not only are the references not combinable under 35 U.S.C. 103 (a) to reject claims 26 to 44 but none of the references, even Heimann, et al, teach or suggest that a test vehicles with imaging devices mounted on them can be used to collect *image data during vehicle travels, from which lane quality and/or dimension information can be obtained by processing the image data*, as claimed in claims 26 and 32. Heimann, et al, never suggests that lane information can be obtained if the test vehicles travel over a multi-lane road, only that traffic sign information can be collected (column 6, lines 25 to 32; lines 55 to 65; claim 4, last lines of claim 7).

Thus not only is there teaching that the claimed method should not be performed in Wilson, et al, but also the important distinguishing feature of the claimed methods and device, namely the use of the camera to collected image data which can be processed to obtain lane quality and dimension information, is

not suggested in any reference, even Heimann, et al, which only suggests that the video camera can collect sign information from road or street traffic signs.

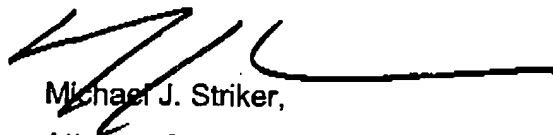
Thus the modifications of the subject matter of the references necessary to arrive at the claimed subject matter of amended claims 26 to 44 are not suggested in the art.

Withdrawal of the rejection of amended claims 26 to 44 as obvious under 35 U.S.C. 103 (a) over Heimann, et al (US Patent 5,948,042), in view of Okude, et al (US Patent 6,157,342), and further in view of Wilson, et al (US Patent 6,385,539), is respectfully requested for the foregoing reasons.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,



Michael J. Striker,  
Attorney for the Applicants  
Reg. No. 27,233